

dextrose—a serious disadvantage in agitated patients because extravasation of dextrose may cause considerable pain and tissue necrosis.

Glucagon has few side effects, with headache and gastrointestinal upset being occasionally reported.⁸ It is ineffective in hypoglycaemia induced by alcohol, in which liver glycogen is already depleted.¹ When patients recover after being given glucagon, oral glucose or carbohydrate should be given to replenish glycogen stores and prevent recurrent hypoglycaemia.⁹ If there is no response to glucagon after 10 minutes intravenous dextrose should be given.⁹ In most cases glucagon is very effective and, being easier to give, is suitable for self administration or to be given by relatives.

Dextrose has been successfully used by trained ambulance staff,¹⁰ as has glucagon with or without a glucose drink.² Another study has confirmed the safety and effectiveness of glucagon as prehospital treatment for hypoglycaemia.⁷ A prepacked 1 mg glucagon unit is convenient to carry, unlike dextrose, which is bulky and needs more protection. Many general practitioners will know the unpleasant effect that a broken phial of dextrose has on the inside of a medical bag.

Glucagon has a shorter shelf life (30 months) and costs more

(£4.62 net per unit) than dextrose, which has a shelf life of 36 months and costs £2.10 for a 50 ml phial.¹⁰ Its convenience and ease of use, however, together with its lack of serious side effects, should encourage use of glucagon as the first line treatment for hypoglycaemia.

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Non-medical use of ketamine

Dissociative states in unprotected settings may be harmful

Several reports have recently appeared of the use of ketamine ("vitamin K," "super K") at "rave" parties and night clubs.^{1,2} As ketamine is a powerful anaesthetic its uncontrolled use in social settings is a cause for concern, although there is little documented evidence, as yet, that its non-medical use has greatly increased as suggested by media reports. These reports suggested that ketamine was initially introduced as an adulterant in 3,4-methylenedioxymethamphetamine ("ecstasy") tablets and is now sold in its pure form.²

As an anaesthetic agent, ketamine has a good safety profile.³ Unlike most other anaesthetics it is a cardiorespiratory stimulant rather than a depressant, and its wide margin of physical safety has resulted in the drug's use in paediatrics and as a battlefield "buddy drug."³ Its main problem is that it can cause psychological dissociation, resulting in hallucinations and phenomena which may include subjective experiences of being out of the body or states similar to the near death experience.^{3,6,9} (These states differ from those produced by hallucinogens such as LSD and emotional enhancers such as 3,4-methylenedioxymethamphetamine.) Although these phenomena may frighten some patients, others find them tolerable or pleasant.^{3,9} There may also be effects on movement such as stereotypies (persistent repetition of acts or words), a severe loss of coordination, and pronounced analgesia.³

The psychological effects are brief, depending on dosage and route of administration, but usually last about 30 minutes. The doses used for surgical anaesthesia vary between 2 and 10 mg/kg. Psychological dissociation, however, is produced by much smaller doses—for example, 50 mg by intravenous injection can produce a pronounced dissociative state.^{3,4} In current social usage the drug is taken intranasally or orally.

As ketamine has a good physical safety profile and an established place in medicine within current indications what are the reasons for concern about its non-medical use? The first and most important reason is that ketamine can readily induce a state of virtual helplessness, within the dose range

normally taken by users, to a far greater extent than most other substances of abuse. The dissociation can be very dramatic, such that awareness of the environment is completely lost while the user experiences a "separate reality," a marked reduction in sensory input in all modalities, and difficulty with movement. This is almost never the case with substances such as 3,4-methylenedioxymethamphetamine. The helplessness of the dissociative state may not be a problem for a patient in a protected setting, but at a large social gathering the chances that a disconnected person experiencing incoordination and analgesia may come to harm are substantially increased.

A further cause for concern is that ketamine can sometimes result in a state where the users are unconcerned whether they live or die. This is not a depressive or suicidal phenomenon but is related to the particular effect of the dissociative state upon the mind: "If you have a full-blown experience of K, you can never believe there is death, or that death can possibly influence who you are."⁷ Again, this may not be a problem in a protected setting but is cause for concern in a public place.

In some people ketamine has the potential for compulsive, repeated use; cases of self administered injections several times daily over prolonged periods have been reported.^{4,8,9} Long term use of high doses of ketamine has the potential to interfere with memory, learning, and attentional mechanisms due to blockade of the N-methyl-D-aspartate receptor, although there is no clear evidence of this at present.^{4,8,10} Ketamine has been associated with recurring phenomena ("flashbacks"),^{4,8,11,12} although whether these result from drug induced physiological changes or are a functional response to anxiety in predisposed personalities is still unclear. (In these cases flashbacks may involve little more than a "graininess" of vision under anxiety provoking circumstances.⁸)

People coming to medical attention under the influence of ketamine are best placed in a quiet, darkened room until they recover. Diazepam may be given for unresponsive panic attacks.

The use of ketamine in a social context can be discouraged by educational measures, some of which have already commenced. The disturbing qualities of the state itself may prove sufficient to prevent the non-medical use of ketamine from becoming an entrenched public health problem. Rescheduling the drug would inconvenience those doctors, veterinarians, and scientists who use ketamine in their work and hopefully will not be necessary.

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Meeting local needs

The private sector must be included in data collection

"District health authorities can then concentrate on ensuring that . . . the health needs of the population for which they are responsible are met; and that their population has access to a comprehensive range of . . . services." This quotation from *Working for Patients* shows that health authorities are required to determine the needs of their populations and the services required to meet them.¹ In order to do this health authorities must have comprehensive information about the existing use of health care.² In most cases patients' needs will be met from within the NHS. But what if some are being met in the private sector? If a high proportion of its population obtains private treatment should a health authority purchase the same pattern of care from the NHS as one whose population does not have access to the private sector? To do so would risk purchasing care inappropriately and, by wasting money, could exacerbate inequalities. But how is a health authority to know whether some of its population's needs are being met in the private sector? At present it cannot.

That would not matter if the private health care sector was very small, but it is not. Almost one in 10 of the population of Britain is currently covered by private insurance. One recent estimate was that the private sector carries out 15% of elective surgery and 59% of abortions and provides 58% of long term care of the elderly and 7% of acute psychiatry.³ In some regions these figures are very much higher.⁴ Purchasers of health care have tried to adjust their expected intervention rates to allow for activity in the private sector, but the calculations have been extremely crude because local data have not been available.⁵

There are four pathways by which information on health care should be received by purchasers. Firstly, NHS funded care in trusts or directly managed units is identified by way of the contract minimum data set. Secondly, this is also the case, in theory at least, where patients are treated in private hospitals as part of a health authority contract.⁶ Thirdly, when patients are funded privately in NHS pay beds data are collected by regional health authorities as part of their NHS monitoring, but the information is not passed on to purchasers since it is not covered by contracts. The collection and analysis of data are even less clear cut for those facilities situated within NHS hospitals but managed by private

companies. Finally, when patients receive privately funded care in private facilities health authorities have no access to data at all. Yet if they are to fulfil their responsibility to monitor their population's access to health care the authorities must have all of this information.

The private sector has shown willingness to help solve this problem. When, however, in one district, private hospitals attempted to provide data they found that in most cases they could not identify patients' districts of residence (S Israel, personal communication). These difficulties should not be insurmountable; for example, there is now a national agreement by BUPA to supply cancer registration data.

Other countries with more pluralist systems of provision have recognised this problem and dealt with it. In the United States 35 states have legislation requiring all hospitals to provide a standard data set on each patient treated. Purchasers and providers recognise that sharing of information can contribute to the shared aim of improving health care. There is no reason why the same approach could not be adopted here. If the National Health Service Management Executive was to tackle this issue it might find that it was pushing at an open door.

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